

BIOHACKERS

UPDATE MAGAZINE

EXCLUSIVE Interview
with Digital Transformist,
Best-selling Author
& Biohacker,

TEEMU ARINA

**HIS BEST
PRACTICES**

**HIS ULTIMATE
MISSION IN LIFE**

**GET HIS TAKE
ON THE FUTURE
OF BIOHACKING**

ALSO IN ISSUE 7:

CAN FLUID
INTELLIGENCE
BE TAUGHT?

WHAT IS GRIP
STRENGTH AN
INDICATOR OF?

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Our New Categories

We've revamped our categories to bring you the same great content in a new swift order, based off pure simplicity and experience.

Outer – This branch contains concise and 'to the point' articles that just touch the surface of what biohacking is as a subject while relating to everyday life and how biohacking fits in.

Inner - This category takes a deeper and more scientific approach to biohacking. These articles focus on a more scientific and analytical theme of biohacking, breaking down more of the whys and hows behind it all.

Core – Within this sphere lie many specific and perhaps relatively new biohacking articles, all backed by science and studies, many of which are written by experts in their relative field. These articles bring it all back to the big WHY behind biohacking while connecting it to all the facts.

A hand is shown in silhouette, holding a glowing, wireframe brain. The brain is surrounded by a complex network of white lines and dots, resembling a neural network or data structure. The background is a warm, orange sunset sky with a sun low on the horizon. The overall image conveys themes of technology, neuroscience, and human potential.

MESSAGES FROM OUR BIOHACKING TEAM

A LETTER FROM THE EDITOR

In a world that demands so much of us in every area of our lives, it can be easy to completely immerse ourselves in one subject of our life as we work to improve it exponentially. Although improvement is certainly a goal in all areas of life, we must remember that it can be a detriment if not done in a responsible way. Focusing all our time and attention on one particular element, although highly productive, also comes with a high loss: namely, the neglect and decay that comes to our other life goals/necessities. This type of growth attracts many followers because of the seemingly fast-track results and elevated effectiveness. However, it is not sustainable. Growth must be a gradual process, involving all areas of life on the upward spiral towards our self-optimization. Spiritual, Physical, Mental, Emotional, and all the other subjects must each be regarded as important in order to grow in the healthiest way possible. The word we are looking for here is 'Balance'. After all of the progression and benefits the biohacking and self-improvement industries bring us, we must remember not to lose ourselves in one area and forget about the other factors life calls us to maintain. The learning process is not just about knowing a lot about a little (area). Its also

knowing a little about a lot (of areas). By becoming a student to everything life throws at us, we open our minds to form new connections and associations, thus allowing our brains to think more creatively and constructively. By absorbing information from the various subjects, we can train our brain to even share these sometimes-complicated ideas and vast biohacks into a language that more of the common world can understand and use effectively. Albert Einstein once said, "Genius is making complex ideas simple, not making simple ideas complex."

So, keep an open mind about biohacks for all parts of life. Something you think as dull or ineffective, may come of some use to you later if you at least acknowledge the basic information and don't completely harden your mind. Of course, ask questions and do your own research, but never write anything off just because of your initial instinctual judgment. To change, we have to be open to change, and to be open to change, we have to see every experience of our life as a learning process. When we live by this approach, and focus on changing ourselves in a positive, sustainable way that encompasses all the factors of our life, we are truly walking the path towards greatness and self-optimization.

ABOUT DALLAS MCCLAIN



Born in the USA, Dallas is a passionate reader of personal development books and a tennis enthusiast. He is the Chief Financial Officer and Editor of Biohackers Update Magazine and the co-founder. He holds a bachelor's degree in Biological Sciences, as well as a TEFL level 5 certificate in teaching

English. He is currently living in Orlando, Florida with his wife and daughter where he enjoys writing, sports, and nature hikes in his free time. Dallas can best be reached at his email:
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Time for Clarifications: We are Pioneers of Wellness! - COO JEAN

FALLACARA

Nowadays Biohackers can be perceived as hippies, scientist wannabes or gurus.

From the do-it-yourself biology, to improving performance, health, longevity, and wellbeing. Everyone today wants to Biohack something, somehow!

Even hard-line anti-biohackers neuroscientists are now giving <<biohacking techniques>> to improve health and performances!

Can we really hack our body?

Scientifically my answer is NO, because you cannot hack biology; however, you can improve it.

Therefore, it is time for a change.

Shall we say Soma Optimization or Life Optimization... No matter what you want to call it, most common biohacking techniques, like meditation and intermittent fasting, have been around since ancient times.

And that's probably the reason why everyone seems to want a piece of the cake. The wellness industry will soon be

the extension of the data economy with millions of dollars flooding in it.

Every day a new app, a new gadget, a new supplement pops into the market, monitoring exercise patterns, optimizing breathing, sleep, health, diet and longevity...

One sure fact, wellness technology will infiltrate our bodies and change the human nature for real!

And THAT is biohacking.

--[Jean Fallacara](#)

ABOUT JEAN FALLACARA



Born in France, Jean is an athlete, entrepreneur, scientist, public speaker and an Art collector. He is the founder and CEO of Z-SC1 Corp and Cyborggainz and the COO of Biohackers Update Magazine. He is also the author of "Neuroscience Calisthenics: Hijack your Body Clock." Jean holds a bachelor's degree in biochemistry, a master's degree in immunology and genetics, and an

engineering degree in biotechnology. He has also studied neurosciences and brain functionalities, and law and finances. He is currently living in Montreal, Quebec with his family where he uses his 20+ years of experience as a business executive.

Website: cyborggainz.com

— OUTER

***“We are all connected;
To each other,
biologically. To the
earth, chemically. To
the rest of the universe
atomically.”***

— Neil DeGrasse Tyson



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WHAT IS GRIP STRENGTH AN INDICATOR OF?

Having a firm handshake not only shows your personality traits but can also [indicate a strong grip strength](#). This is because your muscle strength or the maximum force which is generated by your forearm muscles is measured by your grip strength.

Strengthen It Now To Avoid Disaster Later

Although old age is one of the musculoskeletal factors, if you don't [see yourself having a physical disability in your golden age](#), research indicates that improving your grip will deter injury and health-related outcomes like:

- Sarcopenia
- Slow Gait Speed
- Frailty
- Disability
- And Several Chronic Diseases

How To Improve Grip?

Your grip is part of neuroscience, with your nerve system moving through your hands and arms. With a weak grip, this indicates a gap between the behavior the brain is transmitting and the cognitive brain towards the nerve system traveling through your arms and hands, which is also part of the musculoskeletal factors.



It's never too late to start changing or improving your current lifestyle to strengthen your grip. It's all about your performance mindset and physical performance enhancement.

There are many ways to help [improve your grip](#), like:

- Squeeze a stress ball
- Book pinching
- Squeeze the bar
- Farmer carry
- Lift heavy - do it gradually. When lifting heavy weights, let there be tension in your wrists, but not pain. Injuries occur quickly in that area.
- Plate pinch
- Use grip builders
- Wrist rotations

You need to train your grip every day. Stop using wrist straps and other grip aids when you go to the gym, as

these only encourage weakness in your grip.

You may think yourself already past the point of no return, but biohacking can make it possible. One of the main benefits is that biohacking can enhance your brain function. Below are a few ways you can start biohacking:

- Eat the right food
- Reduce your sugar intake
- Be grateful
- Take vitamins and nootropics daily
- Sleep tracking

[Neuroscience Calisthenics](#) is the power combo between biohacking, neuroscience, and physical performance. Not only does Neuroscience Calisthenics awaken your cognition brain, but it also improves your performance mindset.

What's In It For Me?

Above and beyond the already noted benefits of having a

stronger grip, you will also reap more benefits like:

- Lower risk of getting arthritis, carpal tunnel syndrome, and tendonitis
- Your fine motor skills will drastically improve.
- You will be able to lift heavier weights at the gym, making you overall stronger. It will also improve your athletic performance, and you have conditioned your wrist to help prevent injuries.

Do your wrists already hurt? Or do you let your pen fall from your fingers without consciously meaning to do it? These are already indicators that you will need to do a

grip test. Even if your test advises that you don't have a weak grip, don't wait for the next "weak grip" incident! Act now and start strengthening your grip. Although there are grip strength [Instagram](#) videos and numerous do-it-yourself exercise programs on Google to improve your grip, consult an exercise physiologist for optimal improvement.

—LEBERT—
FITNESS® FOR ALL


EQUALIZER

TOTAL BODY STRENGTHENER



BEST BODYWEIGHT TRAINING TOOL





CHRONOLOGICAL AGE VS BIOLOGICAL AGE: ARE YOU OLDER OR YOUNGER THAN YOU SHOULD BE?

Did you know the term, 'lifespan' was not known to have appeared before the year 1831? In that year, the average global life expectancy was a full 29 years. Many advances in modern science, hygiene, food growth and production, etc., have since raised this number to above 75 years. Death is one thing that is certain about life, but to continue living, one cannot only focus on how long they should live, but more on how well they should live. The term for this could be called 'health-span'. Once people started living longer and seeing that for many, only disease and soreness from their younger years awaited them, a growing consensus started to take on the mission of defying aging, or at least slowing it down.

When we think of ageing there's too factors to consider: The Telemeres and The Epigenes. Telemeres are like end

caps on the chromosomes of our DNA. They are in charge of getting the DNA copied correctly whenever our cells divide. Over time, they start to degrade or shorten, known as telomere attrition. Epigenes regulate gene expression by acting like the constant micro-manager at the office, telling the DNA precisely what they will become. As we age, the genes begin to lose that guidance and then things become disorganized and there's a grater chance that all hell could break loose. Genes that are supposed to be on, are turned off, or vice versa. Chronic diseases start to creep in.

So what can we do to help reverse, or even just stunt the ageing process? Well here's where some interesting science experiments come in. Japanese Biologist, Shinya Yamanaka developed a biological cocktail that could reprogram a cell's

epigenome back to its original form. He first tested it on mice but was astounding able to show that it successfully reset human skin cells to infancy. He won the Nobel prize in 2012 for his accomplishment.

Steve Horvath, a geneticist and biostatistician, was able to add more spice to the mix. In 2011, he took a DNA sample, measured its methylation (methyl groups being added to the DNA molecule, sort of like judge how used a pair of shoes are by the tread) and then ran the results through a machine learning algorithm. From this he was able to determine the estimated biological age. This came to be known as Horvath's clock and changed how we used to define ageing as a single term. Now we have a way to measure how old we are based off our biological make-up, our DNA's condition, and another is by actual numbers (the number of trips we've taken around the sun). This is important because based off one's lifestyle, they can either be biologically younger than their chronological age, or vice versa.

Another scientist took this information to form his own

experiment based off the hypothesis that one could repair one's ageing cell, just like one could repair a scratched, worn CD. He argues that the CD has all the necessary information and data, its just no longer readable, but could be repaired with special solutions. Sinclair thought the same could be said for our cells. He put his theory to the test. Taking two young mice, he effectively aged one of them by scratching its epigenome. Soon he noticed that the mouse showed all the signs of ageing, but in a short time frame. Graying hair, dementia, osteoporosis, even sickness. After proving that he could accelerate the ageing process, now he wanted to try to reverse it. Using a molecule know as nicotinamide mononucleotide (NMN), he treated the aged mouse and recorded his results. After two months the mouse experienced a 56 to 80 percent rise in endurance. The treated mouse could even run faster than its untreated pair. After double checking his results in the Horvath clock, he found that the mouse had indeed been de-aged. It doesn't stop here though. Sinclair was also remarkably able to set the mouses biological age back beyond its chronological age. Its worth noting that its





not just mice that have been the test subjects of NMN. Sinclair himself uses it, and has been for years. According to some writers, he's 50 years old, looks 40, and is a prime 31 according to the epigenetic clock.

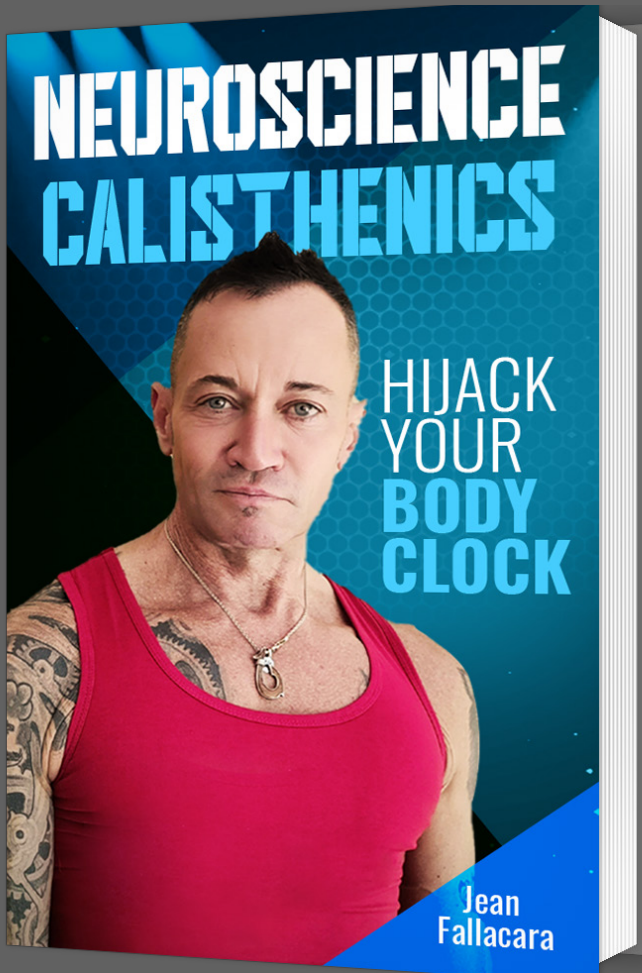
Now that we know some of the science, it seems like humanity is on the right track towards slowing down or reversing aging scientifically. And although many of these potential hacks are years if not many years away for public use, there are still everyday simple biohacks we can do that will help ease the ageing process.

- Manage your stress level.
- Surround yourself with people you like.
- Eat less, live longer.
- Rack your brain.
- Switch to more natural cosmetics.
- Spend around 15 minutes in the sun.
- Dance more often.
- Go to bed one hour earlier.
- Add more vitamins to your diet.

References:

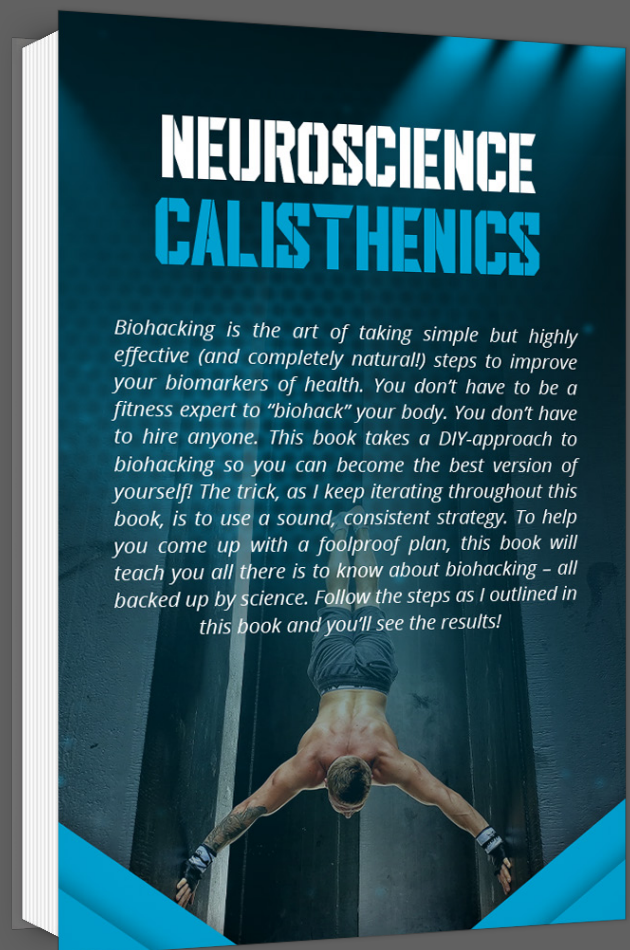
Stuff you should Know by Josh Clark and Chuck Bryant

<https://brightside.me/>

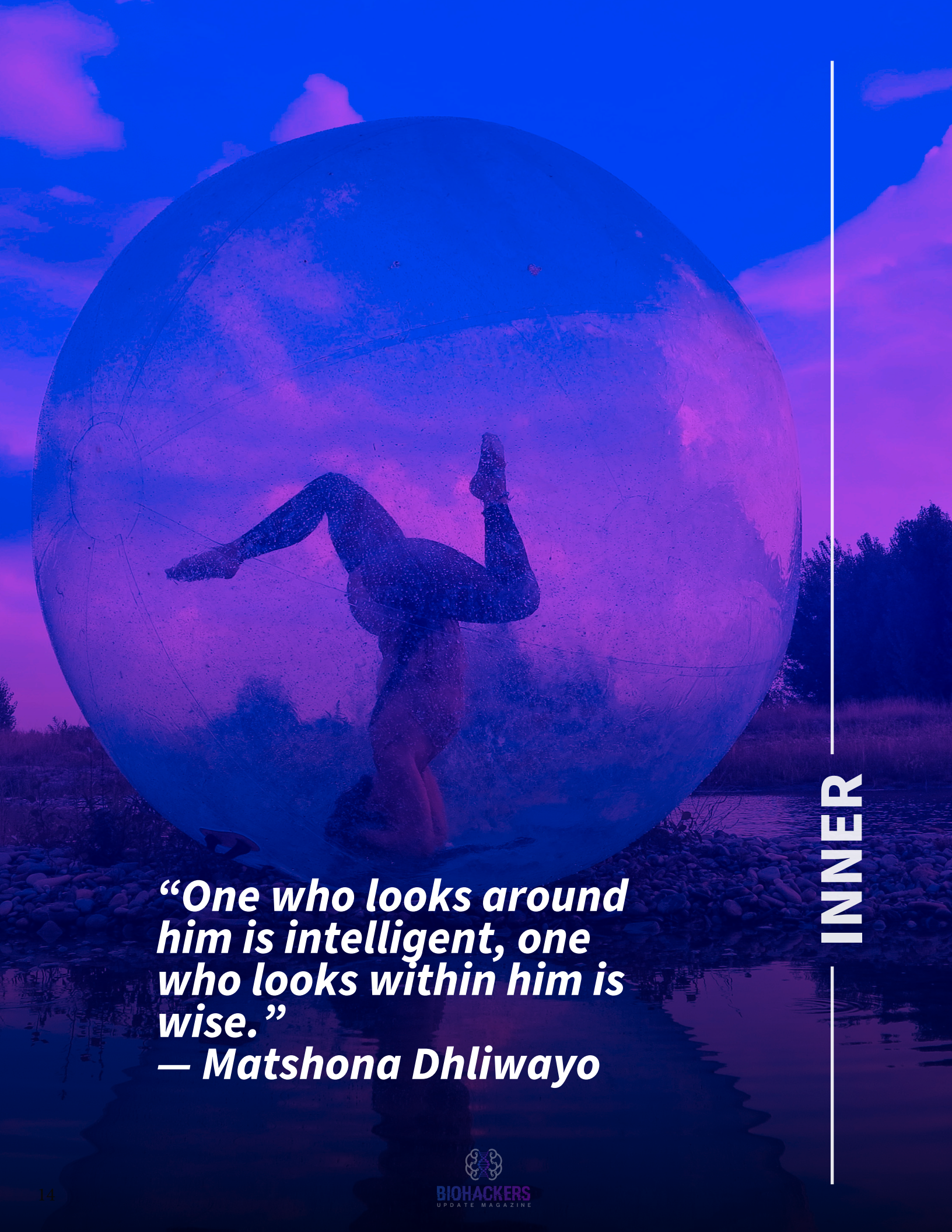


UNDERSTAND THE NEUROBIOLOGICAL EFFECTS OF YOUR TRAINING

LEARN ABOUT IT HERE!



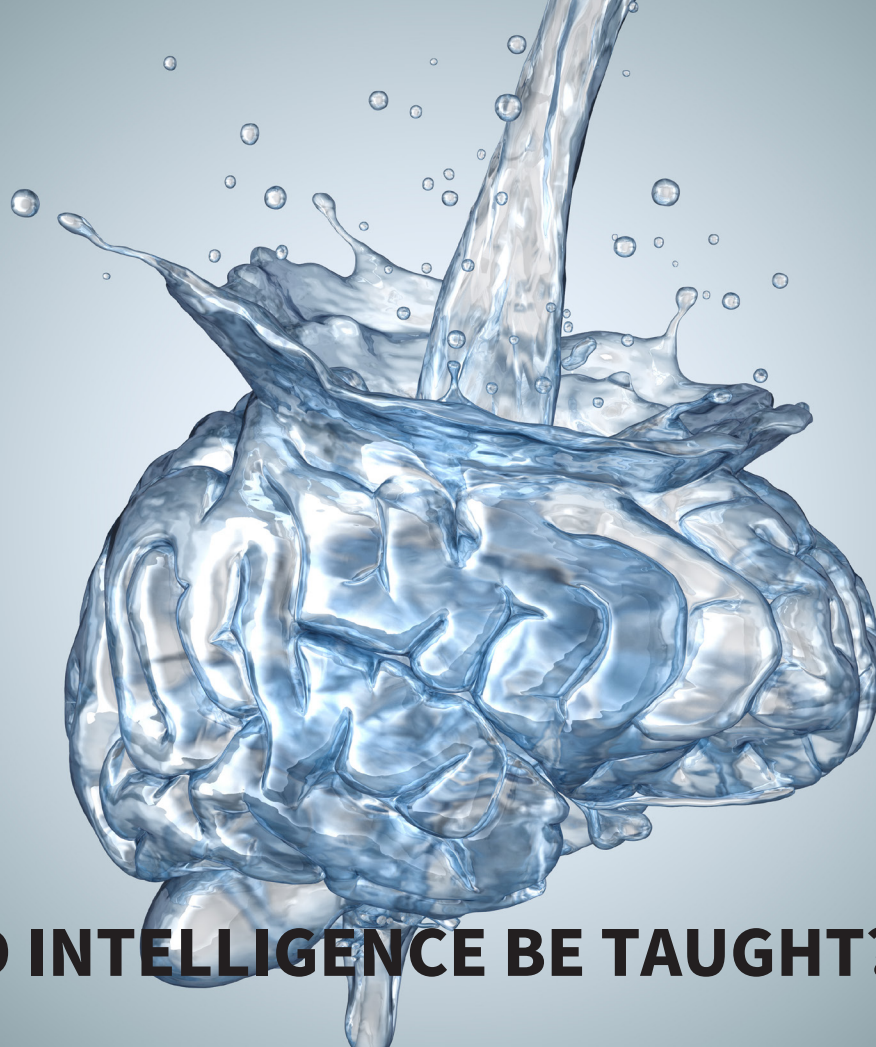
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***“One who looks around
him is intelligent, one
who looks within him is
wise.”***

— Matshona Dhliwayo





CAN FLUID INTELLIGENCE BE TAUGHT?

[Fluid intelligence](#) in neuroscience is about how we think rather than the knowledge that becomes resident in the brain. In the past, people would think that intelligence was something that was fixed, but it's just not true. With careful research, we find that there are plenty of things that we can do to [increase our intelligence](#) and improve our performance mindset.

What Is Fluid Intelligence?

Did you know that there has been the idea of two types of intelligence for more than 50 years? In the 1960s, Raymond Cattell, a psychologist, developed the idea of two types of intelligence - fluid intelligence and crystallized intelligence:

- Crystallized Intelligence: the ability to use the experience and knowledge built up over time.
- Fluid Intelligence: the ability to identify patterns, think, and reason.

We develop crystallized intelligence with concentrated study. This can be from learning facts and taking in information, and it's the type of intelligence that comes with studying for exams at school. Our experience rounds off our intelligence as we learn what works and what doesn't - it's trial and error. Fluid intelligence isn't the same. It's not built on facts and data, and neuroscience shows us that we can increase it in a lot of different ways. This means that fluid intelligence can be taught. Some studies show that physical activity is a key factor in improving fluid intelligence. Here are a few ways you can increase your fluid intelligence:

- Always try new things. We challenge our brains every day but making a point of challenging our brains means that we encourage them to work in new ways and create new neural connections. It becomes a routine once we learn how to do something, and doing new things makes the brain work harder. Exploring new ideas can improve fluid intelligence!

“We challenge our brains every day but making a point of challenging our brains means that we encourage them to work in new ways and create new neural connections.”



- Don't set limits. We know that it takes time and patience to build muscle, so you have to use the same time and patience to push beyond what's comfortable. If we push beyond our natural limits, we are able to better retain information and build new connections in the brain.

- Use the entire brain. If you want to improve associative learning and achieve the best neural growth, the whole brain must be used. This happens using a variety of skills to solve problems. If you love painting and writing, studying science can help you to use your whole brain. If you enjoy numbers, then woodworking is a good way to expand your brainpower.

- Remain as active as possible. We mentioned that fluid intelligence can be built with physical activity. Studies have suggested that it's vital for brain development and research also suggests that it can reduce the risk of degenerative brain conditions like Alzheimer's.

The brain is still being studied, and there is much about it that we don't yet know. With the understanding that we have of intelligence, it's good to learn that fluid intelligence can be taught if you want to make for a fulfilling and more interesting life.



FACTORS MODULATING THE EFFECTS OF WAKEFUL REST ON MEMORY

What Is Wakeful Rest?

By definition, [wakeful rest](#) is a very brief and quiet period of relaxation with as little mental stimulation as possible. This phase has been shown to improve the performance of memory compared to tasks filled with distractions. There has been plenty of neuroscience research to show that this benefit is driven by the consolidation during a wakeful resting period.

[Cognitive neuroscience](#) experts have found that the easiest way to boost memory is just to close your eyes and rest for a moment. When we learn new things, we need to try and retain them as much as possible, and it's a wakeful sleep that can help to lock that information down into the brain and keep it there for the long term. The studies that have been created for those in calisthenics have shown that to retain a performance mindset, a wakeful rest after a period of learning can help. We rely on cognitive neuroscience studies to tell us that memory consolidation is a must.

There have been many studies that have looked into wakeful rest as well as the factors that modulate the effects of waking rest on memory. Cognitive neuroscience tells us that memory consolidation is essential, and yet there are studies to show that waking rest after learning can have similar effects on delayed memory performance in the same way an active wake condition does.

With a brief period of wakeful rest after learning, memory retention is improved and supported. Distraction can weaken it, but it's something open for investigation considering whether age has an impact on post-learning wakeful rest. Studies have been conducted to test:

- Whether post-learning wakeful rest can help to support and promote verbal memory retention in both aged seniors and young adults, and:
- Whether the amount of rest benefit changes as we get older.

The studies were performed on both older adults and younger adults. In both studies, both age groups can learn and recall two-word lists immediately, and after one of the lists, the participants of the study rested wakefully for around 8 minutes and after the second list, they solved the memory test offered. This was tested a second time later on, and younger adults outperformed the seniors as part of the study.

The next thing to note is that the groups' ability to retain their memories was much higher following a wakeful rest phase, in comparison to distraction. Wakeful rest benefits are significant for older adults, and yet the younger adults retain the same amount of memory as usual. The assumption is made that seniors can profit more from a wakeful rest phase as they are more prone to distraction than younger adults.

New Memories Take Longer

The biggest takeaway from the studies performed is that the formation of new memories takes much longer than a few seconds. There is a lot of misunderstanding here that people will remember what they need to remember instantly, but the truth is that when we learn, we need to rest for a few moments before moving on and essentially distracting our brains from retaining the information. For example, if you learn something new and then immediately engage in a new activity, you're going to find it harder to recall that early information that was learned. Instead of moving directly into a new activity post-learning, you should stop a moment and close your eyes.

Given that the studies have tested adults of a range of ages, it's clear to see that those who participate in ten minutes of wakeful rest after a period of learning can do better than those who go into an activity after learning. Those who took part in the wakeful rest portion of the program were asked to rest in the dark quietly. The other half of the study group were asked to play a game on the computer. The most important thing for the wakeful rest group to remember is that they had to have no distractions at all. Emptying the mind is a big part of getting into performance mindsets and distractions prevent that from happening. The participants who were involved in the computer game had to pay careful attention to the game,

but they had to remain quiet, too, because verbal processing could get in the way of the recently acquired memories.

New Experiments

There are experiments where participants had to recall story details within half an hour of the ten-minute wakeful rest. They had to recall the information again seven days later as part of the study. The conclusion showed that those who were in the wakeful rest group had an easier time remembering the information that they were told compared to the other group. There was a second experiment run once again for the adults in the wakeful rest group. They were tested to see if the 30-minute recall was responsible for their results instead of the rest they had. The second experiment went as follows:

- Participants had to recall stories 7 days later.
- The wakeful rest group remembered more than the other group.
- The conclusion was such that the 10-minute wakeful rest period consolidated the recent memories and sealed the experience.
- Without that consolidation, the person could easily forget the information and find they cannot pull it again later on.

We're constantly bombarded with new information and opportunities for learning in the world that we live in now, but the clearest thing here is that with a little peace and quiet we can hold onto our memories a little longer. Wakeful rest is proving to be promising as a technique in enhancing verbal memory within 30 minutes. There was no real significance of wakeful rest after a week in stroke survivors, but the findings of wakeful rest show that there was an enhancement in the process of memory consolidation by protecting against distractions. Cognitive neuroscience shows us the importance of wakeful rest, and there are many things to consider to know whether it works or not.



THIS IS YOUR BRAIN ON PSYCHEDELIC DRUGS

Hello Biohackers, I am Ashley, The go-to integration coach across all our beautiful nations and founder of Elemental Growth. Today I am here to place a strong focus on the integration of indigenous psychedelic medicines for brain health so you can explore the plants and fungi helping us carry out our purpose on earth. My professional expertise resides in nutrition, hormone health, energy work, and 17 years' experience working directly with natural foods & medicines such as magic (psilocybin) mushrooms.

These ideas I am about to share with you are 'far out' for the average person - this is an article written specifically for the people with an open mind, self-awareness and belief that they can heal themselves body, mind and spirit. In my book *Be The Change: Your Guide to Elemental Growth* I guide my readers through a year of transformation using the free food and medicine all around us. To keep things relevant today I am going to get a lot deeper and share my personal BIOHACKING SECRETS!

Bio-hacking is all about self-improvement and human optimization. As Tony Robbins explains it "Biohacking is essentially the practice of changing our chemistry and our physiology through science and self-experimentation to energize and enhance the body". I don't know if Tony has experimented with psychedelics but I know they do help

make the process of biohacking more impactful and enjoyable. Looking at history, humanity has used classic psychedelics such as psilocybin mushrooms as sacraments since ancient times. They were making waves throughout psychiatry and neuroscience in the 1950s to 1960s. During this time, they also contributed to the emergence of the field of molecular neuroscience. Psychedelic drugs were popularized in the 1960s by researchers such as Timothy Leary, Ram Dass, Terrence McKenna and other enthusiasts. Between the 1960's and the 1980's, a number of scientific studies were being conducted on psychedelic substances. However, due to radical activism and drug propaganda, psychedelics were made illegal in 1970. This prohibition resulted in an abrupt halt in research that soon went underground. Today Psychedelic research has once again become a rapidly accelerating field in science, psychology and medicine. It turns out that criminalization and "this is your brain on drugs" propaganda wasn't enough to keep our species from exploring our own psyches and potential as humans. Psychedelics again prove effective at treating mental health illness such as PTSD, depression, anxiety, and addiction. Their serotonergic neurotransmission opens one up to experience life fully. Neurogenesis molds one's personality which has an important impact on one's value systems, cognitive flexibility, and behaviours. These natural flora and fungi may just be our

saving grace when it comes to self-regulation and mental health recovery. Psychedelic reports show us a boost in psychosocial wellbeing, cognitive enhancement, creative enhancement, reduced depression and anxiety, enhanced self-insight, mindfulness, improved mood and attitude toward life, improved habits and health behaviors, also improved social interactions and interpersonal connections. Still, treatment for depression, the most common mental illness, is dominated by pharmaceutical drugs called selective serotonin reuptake inhibitors like Prozac and other SSRIs. These drugs boost levels of the neurotransmitter serotonin in synapses by blocking its reabsorption by neurons. Despite the fact that SSRIs come with crazy side effects, depression is NOT a serotonin imbalance, and out of the 13% of US citizens taking SSRIs only 1 in every 5 people get the help they require from them. According to the US addiction center, Antidepressant Addiction is a primary, chronic, neurobiological disease with genetic, psychosocial, and environmental influence. They also have crazy withdrawal symptoms such as depression, suicidal thoughts, serotonin syndrome, vomiting, diarrhea, and brain zaps.

Psychedelics on the other hand, work like Nootropics (noh-ə-TROP-iks). They are smart drugs and cognitive enhancers. They actually improve cognitive function, particularly executive functions, memory, creativity, or motivation, in healthy individuals. These naturally sourced substances seem to unlock the brain's ability to remodel itself through Neuroplasticity, meaning they rewire the brain. Working with a coach or other health professional may further support new growth and connections. In Silicon Valley and perhaps elsewhere too, there is increasing experimentation with nootropic and psychedelic substances for cognitive enhancement, creativity and general well-being. Some people swear by modafinil (Provigil) to keep them alert, while others are trying psilocybin mushrooms as a way to stay more engaged and creative during the day. Nootropics and psychedelics have profound effects on our cognition, sense of well-being and creativity, though little is known about their effects on the brain due to prohibition.

What we do know is, Psychedelics decrease blood flow to the “default mode network” (DMN), an area of the brain that is activated when the mind is wandering and has no commitment. In Napoleon Hill's book “Outwitting The Devil” he referred to this as the “Drifter”. When taken with intention psychedelics allow you the ability to think beyond

your limited set of beliefs programmed within the DMN, and find NEW solutions. As psychedelics decrease DMN activation, users expand their ability to connect seemingly unconnected pieces of information and create revolutionary new solutions. These changes enhance lateral thinking and creativity, both of which are critical for problem-solving and analytical thinking. The truth is Mental Health disorders are powerful superpowers and psychedelics give us the wisdom to “use the force for knowledge and defense”. Psychedelics have regained interest because users report beneficial effects on cognitive processes and well-being. While science mainly focuses on the central nervous system including the immune system and the neuroendocrine system, the microbiome is actually where about 95 percent of the serotonin in your body is produced. With mood, anxiety, and substance-use disorders being among the most prevalent psychiatric disorders in the population today, I want to take some time to explain the Gut & Brain Connection. Although several pharmacological treatments are available, they are not effective for a significant proportion of patients and are associated with several adverse reactions. Therefore, new treatments must be explored.

By now, it's no secret the brain and gut are in constant communication. So far, we know serotonin is central to gut-brain signaling. In fact, 90 percent of serotonin is synthesized in the lining of the gastrointestinal tract. Psychedelics, including psilocybin, LSD (a.k.a. ‘acid’), and DMT are serotonergic drugs that bind to the 5-HT_{2A} receptor. Turns out the army of microorganisms within our gut have evolved with us since the beginning of time and as such formed a symbiotic relationship with the foods we consume. The microorganisms within us outnumber our cell count within the human body by 10-times, and microorganisms collectively have 100 times the amount of genes a human has - how cool is that?!? Within the gut, serotonin harmonizes gut muscle movement during digestion, secretion, and processes of digestion and absorption. Serotonin also plays a role in intestinal inflammation, symptoms of IBS, and communication to the central nervous system. When there is a mental block, it shows up in your gut, just as if there is a digestion issue it may fog your brain, this said there is still a lack of research on the connection between psychedelics and gut-health.

In the brain, serotonin regulates mood, cognition, behavior, sleep, appetite, and temperature. The brain also has a direct effect on the stomach and intestines. In fact, a troubled gut can be the cause or the product of anxiety, stress, or depression.

Proving even more that the brain and the gastrointestinal (GI) system are intimately connected. There is also a lesser-known part of our body's nervous system located in our gut. It's called the enteric nervous system. The enteric nervous system's network of nerves, neurons and neurotransmitters extends from the esophagus to the anus. The enteric nervous system relies on the "second brain" in our gut to be in communication with the brain in our head.

This is not just an idea but a fact. My favorite example starts inside our gut. We eat food from the soil (a world of bacteria that is infinite on its own), then the harvest, which contains prebiotics feeds the bacteria in our gut (probiotics), from there we are then fed – a walking body of bacteria in a world, inside an infinite universe. Probiotics are the healthy bacteria that live in your gut. Science shows that a healthy gut is essential for overall health, including brain and mood health. Gut bacteria have been discovered to possess the ability to manipulate neurotransmitter activity and are capable of producing serotonin, dopamine, acetylcholine, GABA, and more.

While psychedelic experiences vary significantly depending on who you are, where in life, and which medicine you decide to work with, people interviewed for journalistic articles commonly confirm heightened clarity and confidence about their personal values and priorities, and a renewed or enhanced recognition of intrinsic meaning and value of life. People who take psychedelics with an intention of spiritual introspection often report that the drugs opened windows into deeper realms of existential experience. Psychedelics are relatively safe, with a low toxicity and risk profile; however, certain adverse experiences such as transient psychological distress and post-treatment headaches are common, and in some cases can be severe and persisting. Risks are mitigated through appropriate preparation, setting and integration support.

A psychedelic experience is a lot like giving birth – you have the preparation (9 months of pregnancy), birthing experience (average 5 hours) and the integration (from breastfeeding to grand-babies, 18+ years) yet for each person, their journey is completely unique. The average mushroom "trip" is 6 hours - 40 minutes to kick in and around 5 hours to experience your individual psychedelic therapy (awakening). Every dose,



every substance, every experience is different because every day you are becoming a new version of yourself. This said, many people still report the same conclusions.

So far as science can tell, psychedelics aren't considered addictive and they don't appear to cause organ damage or neurotoxicity. They can however cause adverse experiences, such as increased heart rate, blood pressure and breathing rate, headaches, and transient psychological distress, dizziness, blurred vision, weakness and tremors, in the hours they are active so the state of your mind and environment are important. For some people, negative effects persist for days or weeks. In order to prepare for a safe psychedelic experience you must consider appropriate dosage, setting, integration and support. I must also add that taking multiple doses or combining with other substances is NOT recommended. Integration is most important because without proper support you may want to pack away your psychedelic experience in the basement of your subconscious where it can come back up unexpectedly.

SEVEN FACTORS THAT AFFECT A PSYCHEDELIC EXPERIENCE

Preparation: Before your experience, make yourself aware of the benefits, risks and contraindications. Activities such as self-exploration, coaching, meditation, journaling, intention-setting and holotropic breathwork can help you prepare.

Type of Psychedelic: Take time to research different types of psychedelics and their effects.

Dose: Understand the dose and response time of the chosen psychedelic. A psychedelic trip can last 4-8 hours, depending on the dose and your sensitivity.

How to Consume: Plan how you will consume the psychoactive substance.

Mindset: Your mindset, mental state, and intention affect your trip. Grounding your thoughts and mood can improve your experience of an altered state of consciousness.

Setting: Choose the physical and social environment for your psychedelic experience.

Integration: Integration and self-care is the key to processing psychedelic trips. It can help to talk through your experience with a guide, as well as free-writing, breathwork, solo walks in nature and mindfulness meditation.

Most psychedelics mimic the effects of serotonin (the mood regulator) and 5-HT_{2A} receptors in the prefrontal cortex. This enables the transmission of signals between nerve cells and plays a role in learning and memory. Microdoses cause cortical functions to be more fluid, leading researchers to believe that psychedelics may help certain brain areas work in increasingly flexible and expansive ways. Social media has played a vital role in the growing visibility of microdosing providing strategies for optimal results, minimized risks, and shared emotional support.

Microdosing is the practice of using very small doses (usually between 10 and 20 micrograms (µg) of LSD or 100 milligrams (mg) of psilocybin) of serotonergic psychedelics with the intention to improve creativity, boost physical energy level, promote emotional balance, increase performance on problem-solving tasks and to treat anxiety, depression and addiction. A microdose does not cause perceptual sensory changes such as visual hallucinations and is not strong enough to debilitate the consumer. In research, microdoses were reported to significantly heighten alertness, creativity, and problem-solving—inducing a “flow state” that aids in lateral thinking.

Before undergoing any psychedelic experience, I encourage you to get your physical health in optimal condition. Include more fermented foods in your diet to support your gut health. Probiotics are the beneficial microorganisms which populate our digestive tract, and they help to digest the food we eat, facilitate absorption of nutrients and regulate our mood. Folate and other B-Vitamins are also crucial because they help in the production of dopamine. You can get your folate from a

daily intake of lentils and leafy greens. Lastly, I want to mention magnesium, a key nutrient for nerve and muscle function and regulating the heartbeat. Magnesium deficiency could exacerbate depression and anxiety so ensure you enjoy dark chocolate and epsom salt baths more often. These elemental nutrition tips, along with proper hydration, sleep, and exercise will set your body up to produce all the biochemicals necessary for a psychedelic BIOHACKING experience.

As I suggested, some of these ideas are ‘far out’, even with science there to back it up. Still, as people come out of the psychedelic closet and work more freely with these naturally occurring psychedelics, there becomes a remembering of how yesterday’s prohibition becomes tomorrow’s stocks, how the precaution of psychedelics includes the oppression of our own human ability to self-regulate for human optimization, and how a temporary disruption of neural hierarchies allow us to surrender control, increasing information transfer throughout our multidimensional being – All while freeing nature from the grips of control, thus freeing our minds. When you liberate yourself, the world around you will follow - it has a ripple effect! I received my training from the Institute for Integrative Nutrition where I learned from world class experts. You may also find value in teaching from the Mckenna Academy, Dr. Dan Engle, and the Sociedelic community where I contribute each month to the psychedelic revolution happening now. For a daily dose of positivity connect with me directly on Instagram [@ElementalGrowth](https://www.instagram.com/ElementalGrowth)

Thank you for this opportunity, I am sending you all much love on your biohacking journey ☺

Ashley Michaud



biohacking CONGRESS

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The background features a central bright light source that radiates outwards, creating a series of concentric, glowing lines and patterns. The overall color palette is dominated by shades of purple, magenta, and blue, with a bright white and yellow light at the center. The lines radiating from the center create a sense of depth and movement, resembling a tunnel or a field of energy.

CORE

The turning point in the process of growing up is when you discover the core of strength within you that survives all hurt.
- Max Lerner



BIOHACKERS
UPDATE MAGAZINE



EXCLUSIVE Interview
with Digital Transformist,
Best-selling Author
& Biohacker,
TEEMU ARINA

Dallas:

Hello everyone. This is Dallas McClain with Biohackers Update coming to you again with an interview with the Teemu Arina. Now Teemu is very famous in the biohacking industry and self development industries, a biohacker himself and a best-selling author. He's also a curator of the international biohacker summit, and he's one of the forefront thinkers of on the intersection of the human and the machine technology enhanced work and learning and digital health and wellbeing. Teemu is also a Leonardo award laureate under the patronage of the European parliament for humanity in digitization. He's also a founder of three award-winning technology companies, the founder of biohacking center and the coauthor of the biohackers handbook for optimizing human performance, health, and

wellbeing with technological and biological tools. So without further ado, Mr. Arina, welcome.

Teemu:

My pleasure. It's a privilege.

Dallas:

We're very happy to have you, and I'm sure there's a lot of people in the biohacking community that are interested to learn more about you and your passion. So let's get right off to it. You've done a lot with your life and contributed a lot to the technology industry, as well as the self-improvement industry in terms of health and biohacking. So I want to ask you why it is you do what you do. In other words, what is your ultimate mission in this life?

Teemu:

Very well put question. So when I was young, I was very

interested in computers and technology in general, and I started programming when at an early age. And since then, whatever I can imagine, I can build. And basically I have a very technical mindset, like how things work, I'm a systems thinker. So I think about things in terms of systems. When I was 17 I became a teacher in a local high school and later preparing students for university courses, I was kind of a child prodigy. So people pick me up as someone who is ahead of their time and a visionary, especially in the field of education and learning. And that led me to basically diving deep into the way people learn and later on how people work. And because I was interested in the way things work, I started building also computer systems for education learning.

Teemu:

And later on, I noticed that the approach that education has, which is transmitting information, is outdated and the social approach to learning is probably the future. So I started building social media, social tools for education and learning. And basically in that process, I got very interested in how knowledge develops in interaction with others. Then I went on to companies to help companies build systems for collaboration and learning in the inside the organization. And then I started looking at organizational theory from a complexity or network-based view, and that was pretty much my career. So, I became a public speaker and a kind of visionary in the way we work and learn in the future. And I also built the tools and also founded a startup company to implement some of those ideas in software.

Teemu:

I raised venture capital for it. And after some years of running around as a very popular speaker and advisor of a startup company and raising venture capital I felt like I was pretty much fully working. And when I turned 30 years old, I guess that's when you start to feel the first signs of aging, because I got like a stress-related illness, basically, an ulcer that didn't heal. So it was a consequence of not

sleeping enough, not having enough time for recovery and not really paying attention to the system or the environment within you. I was only focused on the systems that are outside of me and understanding complex systems outside of me, but I ignored the complex system, which is me. And then when I got sick, it became chronic. And that led me to do what most people do.

Teemu:

You go to a doctor and the doctors give you a medication and the mitigation can dampen the pain or symptoms, but it doesn't really heal the root cause. And basically I was prescribed more and more medication. And then basically after doing a little bit of research on the medication that I was getting, I realized that this is not something you're supposed to take every single day. So I basically did what I'm good at, which is systems thinking. So I did dived deep into researching the inflammatory disease that I had. I looked at that stress-related illnesses. I looked at gut issues, the medication that I was taking and alternatives to it. And I built from the ground up a protocol to heal myself. And that was an anti inflammatory diet combined with a very anti-inflammatory lifestyle.

Teemu:

So I was sleeping enough, doing meditation, breathing techniques, stress management techniques, a nutritious diet designed for recovery and so on. And there was one component was missing for a technical person like me, which is numbers. So I want to understand how these things are actually affecting the whole system and if I'm actually getting the results I'm looking for. So then I got involved and interested in the moment called quantified self, self knowledge, true numbers. That was in 2012. And then I basically got all the different ways of measuring myself from lab tests to genetic tests to urine tests, to quantifying my sleep. And at that time, these were not widely available for consumers. So you really had to go a far stretch to get access to this type of information.

Teemu:

The wearables were not the available in supermarkets or in electronic stores locally. So I had to order all kinds of things and some of them for professional use. As far as the the lab work, the doctors didn't do the labs that I wanted so I actually traveled to another country to go to a lab and I asked them to do certain things in terms of biomarkers and tests, and I got them. And that information provided me feed back loops to understand, basically when I was doing something, what kind of effect it actually had on, let's say, inflammatory biomarkers. And that led me quite deep down the rabbit hole. And after half a year of so-called biohacking, which is in the end optimizing the environment inside of you and around you. Some people talk about health optimization.

Teemu:

I talk about in similar words, it's not really pushing the boundaries. It's more like finding the balance or the equilibrium or in the end, Homeostasis, which is a medical term for the perfect condition that the system drives for, which is your body. And when I started this protocol that was designed to be temporary, I noticed improvement in so many other areas. I got more energy. I also felt less tired throughout the day. And my allergies went the way that I had all my life. And so I was like really firsthand stunned by the fact what lifestyle modification can do to you, especially in terms of diet. So it turns out the kind of diet that I was having was a ketogenic diet. And basically I want to share what I have done.

Teemu:

So I've gathered people around in Finland where I live and the people who came, about 40 people, many of them have since gone and founded companies in the field of biohacking or quantified self. So if you take, for example, the oura ring, which is about tracking sleep quality, some of the people that founded that company were in that room. There were people who were developing heart rate, variability monitors. There were people who were developing nutritional products. And there was also a doctor called Olli Sovijärvi, who is my coauthor author for the biohackers

handbook. We all shared together with that community a lot in common, so I decided to continue organizing these type of events and the first biohacker summit in 2014 was maybe 250 people and since then, we have organized every year, once or twice in different countries.

Teemu:

And we have done now over 10 biohacker summits and our events nowadays gather at least a thousand people and for a lot of exhibitors and people who are interested in biohacking and optimizing their health and wellbeing and performance, it kind of became a movement. And we have been driving that movement in Europe with this event, but in the end, the biggest success came with the biohackers handbook, which is the kind of the manual that we wrote for biohacking, which has over 500 pages, based on over 1,500 medical references and hundreds of illustrations. Four years of work went into producing that book together with my colleagues Jaakko Halmetoja, Olli Sovijärvi and some other people. And it became a best seller in knowledge books in my country. And then we translated that to English in 2016 and it became kind of the go to manual for anyone interested in biohacking. So those are kind of the cornerstones of my work for the last decade or so. I've been basically into biohacking for around 10 years now and I've seen the trends coming and going, but what is stealing the core is the enthusiasm of people to take control of their own health and wellbeing and performance, and figure out what works for them. That is the hacker ethic also; - to basically to tinker with systems and understand how they work. And in this case, it's the application on human biology.

Dallas:

Wow. Yeah. Very interesting, man. It sounds like your history with your career has led you into biohacking just because of how ambitious you are as a person, which is great. But I think there's so many similar stories to yours as well of people that are doing a great thing for the world, but they kind of lose themselves in the process and don't think of their health.

Teemu:

Absolutely. This is this something I want to comment on. There's this story of the wounded healer from Greek mythology. It's a mythical story story of a God that got injured by an arrow that made him mortal again. And because he became mortal, he decided then to dedicate his life to heal others. And that's often what happens with people. You think you're immortal, you know, you grow up and everything is possible. You know, you can eat whatever you want, you can do whatever you want, you push yourself. And then something drastic happens and the system breaks down or your age. And with age everyone develops some issues and it's the trauma that comes with being wounded that then leads you to the healing process that comes out of it, and then leads you to the deeper understanding and wisdom that you then want to share. And this story is what a lot of health professionals go through. Basically they had some kind of chronic disease or issues, and they overcome that and they want to teach that to others. So there's a deep, emotional connection that develops. It's not something, you read from books, but it's firsthand experience and some people never learn, but if you do learn and you want to pass that information forward then you are a wounded healer, for sure.

Dallas:

Yeah. We can learn a ton from old stories and mythology and things. That's a very interesting story. I wanted to talk a little bit about some of this stuff you were mentioning in the beginning when you were talking about all of the different bio markers and things that you use to see what was kind of going on in your life and then how to make those enhancements. There's so many different things out there for biohackers, right? There's so many different subjects in different areas, so many different places to start, but if you had to choose one method or element that someone could add to their life, that would be a good place to start or a good place for them to change for the better, what would it be?

Teemu:

I think in the end it always starts with inquiry of what you have a challenge with. So there is no silver bullet or 'take this pill' and everyone's going to be happier. It's always context. It always depends of who you are, your context, your gender, your age the situation you are in. And a lot of people, they have issues with stress or sleep. So often those are the starting points. So maybe a wearable that helps you to become more aware of your sleep is a very easy step. But if sleep is not your issue, probably you get less relative benefit from a tracker like that. Let's say, if your problem is diet or exercise, then something in that area might be more helpful. But I think what everyone would benefit from is a full blood work, which goes beyond just basic biomarkers. Because if you don't have the status quo, you don't know what's actually going on, then you have no idea what you're optimizing for.

Teemu:

And that's kind of like with anything. If you want to become a professional athlete, let's say running a hundred meters and you don't have the time, how far, how long it took for you to run from one place to another, how do you know from one period to another, if you're improving or not,? So this measurement is helpful. So many people take a lot of supplements without knowing what they're actually optimizing. Let's say you take Vitamin D, which is a general recommendation. How do you know if you have, or if you don't have adequate vitamin D levels now? How do you know that the dose that you take is absorbing? How do you know that it actually increases the serum levels? Then the question is, if the supplement is the right one or the dose is the right one, et cetera.

Teemu:

So a lot of these things can become much more visible. If you measure, in the case of vitamin D, you won't feel it when you take it. So many people say to me "Hey, I know, intuitively some things", yes, you can know intuitively, but if you have data it's much more accurate and faster to build these feedback loops. I'm a firm believer that you can become very

“I’ve been basically into biohacking for around 10 years now and I’ve seen the trends coming and going, but what is stealing the core is the enthusiasm of people to take control of their own health and wellbeing and performance, and figure out what works for them”



aware of your body by just feeling inside. And that's what yogis have done for centuries and long-term meditators. And even on myself doing things like continuous heart rate monitoring, I'm able to quite accurately guess what my heart rate is at a given point of time. And I can bring it down and up at will by using breathing, but it comes through a feedback loop of using some kind of measurement device that gives me the number.

Teemu:

I can also take my pulse and read it like that and learning that way and then know. So that leads to another concept that once you master the tool, you don't need the tool anymore. I think one of the goals of a lot of tools is actually to abandon that tool. So I've noticed that with a lot of biohacking techniques. Let's say you take supplements or do red light therapy for the bio modulation. Maybe you do some grounding. I don't know. Maybe you filter your water. Man, if you move to nature, you get all of that for free. You don't need any of this crap. You don't need any of these devices or supplements, it's freely available to you everywhere. So I think this are modern man's problems and solutions. Also like when you live in a busy polluted that city, you need stress management techniques.

Teemu:

You need red light therapy devices because you don't have sunsets and you have all this artificial light around yourself. So that's the thing, many of these tools are actually free. If you want to bring down inflammation, taking an ice bath is free, or you can take a supplement for it. It's up to you which way you want to go. I've noticed that it's a very commercial industry and it's very product based, but most of the good stuff that actually works is free. Like fasting, not eating at all is the cheapest biohack ever. You don't have to spend a penny and you get results in terms of metabolic health. Often these free things are also the hardest, I would say.

Dallas:

Yeah they are the hardest habits to keep sometimes. There was something you said earlier that I wanted to touch on

as well. You talk about how older forms of technology, although helpful at first, have sort of taken us away from our natural, healthy selves by how addictive they are and how bad they can be for us. But now you're behind this new idea of technology helping us get back to our natural, healthy selves through quantitative measurement, the quantitative self, like you spoke about earlier, but how do we make sure that this new form of technology that's designed to help us doesn't fall back into the same cycle of leading us to only relying on technology and not relying enough on our intuition and also our human side. Right?

Teemu:

So in terms of the human side, I think it's very human to use tools because tools are an extension of our bodies. That's what Marshall McLuhan said A hammer is an extension of your hand, just like a mobile phone is an extension of your ear. A car is an extension of your feet. The modern electronic media is an extension of your nervous system. So we create tools, it's a natural part of our evolution. We make fire, and then we make things out of that fire, but in the end what happens? Technology can also be a Trojan horse. It promises to save us from ourselves and then it becomes the master, not the servant. And technology is often a very good servant. It's a really lousy master. And I guess that's where the problems start. When, let's say, if you take your mobile phone for example, it's a very useful tool, but if it becomes a master of your attention and time, then it can devastate you.

Teemu:

It can really lead to problems. So with a lot of tools and technologies, tools themselves are not inherently evil. It's the way how we use them and our conscious approach to them. Also, we have to understand, of course, in today's world, a lot of the commerce around tools and technologies are actually circling around, making us addicted to using them. And they use algorithms and AI and all kinds of techniques to make sure that we spend as much time as possible in front of our screens, for example.

But we have to become aware of not just the tools, but the algorithms behind them. And I think that's a key process, especially if you think about what people struggle with today, like watching too much Netflix or, you know, spending too much time in front of social media, which is not giving them what they're looking for in there, which is connection. In fact, I guess that kind of has become pretty obvious in the times of the pandemic, that we strive for human connection and social media is not replacing everything.

Teemu:

And it can actually make us quite depressed also by spending too much time in systems like that. But in the end, they are very liberating and useful tools of course. But in terms of like biohacking technologies, I think the dose makes the poison, like you can take too much red light therapy. You can also like too much supplements and you can also get way too crazy with your ketogenic diets or whatever, fat-based coffees and so on. Everything, including drinking too much water can kill you. And the problem I think is the marketing, which is sending the signal that this is a Trojan horse. It's a gift and you can use it as much as you want, and it's only useful. But often there is a dark side to a lot of things. And I've noticed that with biohacking, what happens when you start to do a nootropics and different technologies that stimulate and amplify what you do?

Teemu:

You get benefits of course, performance, better, faster, stronger you get stuff done, but in the end you are pushing the envelope even more. So where is the room for you? If you already maxed out everything? There is no room, that's the problem. It has the potential to create another door for abuse. So you become too reliant on your sleep hacks, or your stress management techniques or your performance enhancing tools, so much so that it's very hard to perform without them, or recover and restore without them. And I think that is what we have to be aware of. Of course it's

not easy to get too addicted to let's say, melatonin, but other sleep aids, for sure as an example. And the body and human organism is surprisingly adaptable. It basically tries to do things in an optimal manner.

Teemu:

So it doesn't do anything extra. So if you are getting testosterone exogenously, your body doesn't have to produce it anymore. So that's the thing, the body is wiser than you think. And when you do something repeatedly, you get into problems. And I think what is kind of the key answer here is, cycling things; you don't do anything every single day. You take a break from whatever biohacks you have or tools or technologies or whatever you rely on. You also occasionally learn not to rely on them. Coffee is a good example. Cycle it out once a month for a week, and you won't build tolerance, but you get all the benefits over time. If you drink coffee every single day, it just helps you to function like normal people would do. It makes you normal. But if you learn to keep the tolerance down, you can actually get the benefits in terms of cognitive performance, which is more than average. But it's not easy, of course, I love coffee, for example. So the problem is us in the end, our sense of enjoyment.

Dallas:

Yeah. Our discipline to keep everything in moderation can be, can be challenging sometimes for sure. So, I just wanted to ask a couple more questions Teemu. Your typical day, can you take us through what you do from when you get up in the morning on a regular day, and what kind of habits you incorporate into your day just to make sure you're trying to keep yourself at the most optimal level?

Teemu:

Yeah. That's interesting. A lot of people ask the question of, what are the daily routines, what do you exactly do every single day? And it implies that there's some kind of formula, that there is some kind of like secret code that produces big performance, but you know, anyone doing creative work knows that sometimes it doesn't feel like things go or move, even if you try to push them, it's not going to happen. So,

when people get into healthy lifestyles and they want to perform well, they start to make rules. They start to make meal plans, they have schedules, they go to the gym, they have all kinds of supplements, or they're very rigid with their diets. And you know what, it's very helpful to learn a new habit. It is a good thing because then you are programming yourself daily by triggering certain cues and behaviors.

Teemu:

And after a while, once they become automatic, it's very hard to not do them in a way. So that is the core of any addiction also, and it's the core of any kind of habit formation. And 80% of the time we are repeating patterns over and over again. And some of those patterns are helpful and some of them are not so helpful. What I like to do is leave a little bit of room for experimentation and changing things, like isolating things that I'm changing actually. So when I started all this biohacking stuff, I was very rigid with diets. I was very rigid with sleep schedule. I was very rigid with exercise and all that. It was very helpful in the beginning, but once you learn the tools and techniques, then they become like strategic tools. You can use them depending on the context.

Teemu:

Let's say, you take diet. When you sense what kind of day you're going to have, what the patterns are going to be like, you're going to choose; what are you going to eat? If you're going to skip breakfast, if you're gonna skip lunch, eat one meal per day, or if you're going to eat, you know, the whole day through. It will be very different if you're going to have a lot of physical movement and exercise compared to a day when you're sitting in front of your computer. So depending on the context, you changed my day, but I definitely know the tools. And then there are seasonal aspects. A winter might be very different than summer. But ideally if I would describe ideally what I do, I would wake up without an alarm clock because in the morning hours, your cortisol level starts to increase and that wakes you up and makes you move in the morning.

Teemu:

So having an alarm clock is just an extra cortisol spike on top of cortisol, which is not going to be helpful. So I would rather wake up with natural light and I've used these alarm clocks based on biometric information. So you have a sleep tracker that tracks your sleep, and it looks at their sleep cycle and wakes you up at some kind of ideal window within which you are entering from a deeper stage of sleep to light sleep. So that would be a good point to increase the lights in your room, for example. So I might have a kind of wake up light that the increases in light or summertime. It might be a natural light that wakes me up. Then, first thing, you keep your mobile phone in airplane mode. So you don't take it out of airplane mode until you have done whatever you need to do before you start your day.

Teemu:

So for example, if you want to do exercise, if you want to meditate, if you want to drink a cup of coffee, if you want to go outside and take in some sunshine, if you want to do some grounding, whatever that is, keep the mobile phone off until that time. And once you have done all of that, you can reward yourself by turning it on because that's where the dopamine comes in. And it's a reward to get notifications from friends and colleagues and business opportunities and all that. So if you basically associate that reward to whatever you just did before that, then it's more likely you will do all those morning things before checking text messages and so on. So I would recommend trying something like that. And I think when people say that they struggle with things like, let's say regular exercise or something like this, it's very hard to start a continuous schedule of let's say, going to the gym 3, 4, 5 times a week.

Teemu:

It's actually a big thing to change so suddenly, it's easier to do it gradually. So do it a little bit. So in my case, I try to incorporate a little bit of movement in everyday. It

could be some pushups or pull-ups, it could be resistance bands. So I try to do a minimum of one set until failure, for example. So that's a good start already. You don't have to schedule a gym. Basically setting the bar as low as possible and doing it repeatedly then makes it easier to put in more effort. So then it's easier to go from one set to five sets or from five minutes of exercise to 50 minutes. So in terms of exercise, I actually enjoy just having small periods of exercise scattered all around your day.

Teemu:

And being metabolically active throughout the day is a good idea. So having a little bit of walking movement, not taking a car from one place to another is a good idea, or not using the elevator, not using modern man's tools might be useful. And with a desk, you may want to get a standing desk so that you can stand at least part of the day. Right? And I know that if I have a standing desk, it's more likely I'll get away from the desk. So then I'm more likely to go and do some foam rolling, or I might go and hydrate myself, or I might go and do a bit of exercise. And that naturally brings micro breaks into your day and breaks are actually good for work.

Teemu:

So if you work at the computer, there is a technique called Pomodoro technique, which I also use when I try to get some deep work done. basically I calculate how many uninterrupted periods of 25 minutes you get into your day. And then you allow yourself to have like a five minute break or two minute break, and then you get back to another Pomodoro. And there are timers for setting up dates because human concentration is like 15 to 20 minutes at once. And then it's good to have a small break. Sometimes I take naps if I want to have another work day in the same day. So, I allow myself to nap if I feel tired, but I've noticed in terms of energy management, that the best way to keep up alertness, at least in my case is to just to skip breakfast and lunch and just have one meal per day.

Teemu:

So I eat most of my calories, usually in the evening. I usually have two dinners spread within four hours. And, uh, basically two main courses, big ones. And that's what I do a couple of hours before going to sleep because its good to let your digestion do its work a little bit before sleep. So by moving my calories into the evening, I naturally get a window of intermittent fasting in that day. And it has a lot of metabolic benefits. David Sinclair [, who is this longevity researcher basically says that that's what they see in lab animals; That the easiest way to prolong a lab rat's life by 30% is just to do calorie restriction and intermittent fasting; just skipping meals. I try not to snack. I'm really big on chocolate. So I like to eat a lot of chocolate bars throughout the day.

Teemu:

But I try not to do that. When it comes to the chocolate, its a super food. It's infused raw Cacao, with medicinal mushrooms, chaga, and maca , and all kinds of nice things. I just loved that stuff and it is good for also metabolism. It's good for blood sugar management and all that, but I think snacking is evil. So it's good to give your body a little break occasionally in terms of supplements. I pick the supplements that are beneficial in that day. So if I feel it's going to be a bit stressful, or very hectic day, I might take some neurosystem balancing thing. If I need a lot of focus and alertness then there might be some things that are more on the nootropic side, but I cycle all of these in and outs.

Teemu:

I'm not doing anything every single day. With Vitamin D, for example, in winter time, I'm not taking it every day. I take a mega dose once a week or twice a week, for example. So I spread things out a little bit and in terms of food, I try to go to the most nutrient dense stuff ever. And it's not like I just have my vegetables, but I have my vegetables that have the best nutrients per calorie. So let's say if we're talking about salad; I'd rather eat wild herbs. Some bitter tasting wild herbs straight from the yard is better than a leave of lettuce. That is just a clever way to sell water to people. There's not many nutrients in there. Maybe fiber, but not high quality



fiber. So recently I've been promoting this idea of one meter of dandelion per day.

Teemu:

So with some dandelion leaves, you get more nutrients per handful than you'd get from a huge plastic bag of lettuce. And it's just much better for your immune function and on many other systems in the body. It's anti-inflammatory as well. So basically you are what you do repeatedly. Learn to be conscious about your patterns of behavior. Don't be too harsh on yourself, change the things, one thing at a time. And in the end, because you are what you repeat, that's where the key is. Many people think when they start the healthy lifestyle, they quit everything that is unhealthy. Let's say alcohol. I mean, it's not a good idea to drink alcohol, but our fermented foods have alcohol in there.

Teemu:

Our ancestors were eating fermented fruits from the ground. Also Sauerkraut is pretty good to get some probiotics. So in the end, our bodies are pretty good at processing it, but in small quantities. If you have a huge amount, it's going to be damaging. Then if you have once a year, that's not going to be a big problem compared to if you do it every single weekend or every single day. So in the end, you are what you repeatedly do. So with a lot of healthy things, some people avoid things like omega-6 oils like it was cancer, but in the end your body needs a little bit, yes.

Teemu:

So too much reductionism is not going to help you. So if you go for a ketogenic diet and you only have avocados and beef, I want to see your gut bacteria diversity. It's probably going to be pretty narrow. So even if you think you're going to look healthy, you're going to get lean and all that, if I measured your gut bacterial diversity, it's not going to look healthy and that probably will have some consequences later in life. So in the end, cycling things, eating a diverse diet, eating seasonally, not having avocados every single day. But the whole point here is that whatever you do repeatedly, be very careful what you do repeatedly because it can turn into a problem.

Teemu:

If you have eggs, every single day you might develop an allergy to them. So cycling things is important. Our bodies are not made to be like robots every single day. So, I guess that's kind of the deeper wisdom that I've learned by doing things in a rigid way, and then letting myself experiment and learning what's actually beneficial depending of the day. I could maybe say something about sleep also, which is basically for me, controlling, light and temperature and air quality. So I try to block light if possible and if I can't do it, then I use some eyeshades, but don't push the eyeballs or restrict blood flow to the brain.

Teemu:

And then in terms of air quality, you're going to breathe, let's say hours of that air. So filtering the air conditioning is probably best in your bedroom. Then, controlling for temperature; So if it's too hot, it's not going to be easy to sleep because your body temperature will drop when you go to sleep. I just get much higher heart rate variability when I sleep in nature when it's naturally colder. So in my experience having a colder bedroom is useful. So I use a device called Ooler, which is basically a chilly pad. It is a water cooling thing for your whole body and it brings down the body temperature. And in terms of food, you definitely don't want to eat too close to bedtime and you don't want to exercise too close to bedtime. If you have problems falling asleep, I wouldn't go crazy with sleeping medications or melatonin.

Teemu:

With Melatonin I would take the smallest amount possible and see when it helps. Probably 0.1 milligram is already enough because there is a potential effect on blood sugar regulation the next day if you take too much, because it also affects the pancreas and insulin secretion. So that's something that not many people know about. More is sometimes not better. So often less is enough. Some people also block blue light and use blue light blocking glasses in the evening. I also do that occasionally and my circadian rhythm is important to me. I'll definitely do it when I travel or if I need to adjust my daylight cycle. But otherwise I haven't noticed much improvement in sleep quality from using them, but I've definitely noticed benefits of reduced eyestrain.

Teemu:

So if you work in front of computers, using some kind of glasses that filter out too much blue light is useful, especially in the evening for eye health specifically. So in the end you have to test things on yourself and figure out what works for you. And if you took some tips from what I just explained, what works for me might not work for you. So do your own experiments. That's important and read

the research and talk to experts and try and look at the data. So if you don't know, measure.

Dallas:

Very well said. I think there's a lot of information there that we could learn from and definitely want to review. Well, Teemu, it's been a pleasure. I know everyone here probably already knows your websites, but I'll give them again. teemu.arina.com. Find out more about one of the best speakers out there in this area and also biohackerscenter.com for cool products and other things to explore in the biohacking industry. And then of course the biohacker summit, which correct me if I'm wrong, it's going to be in Amsterdam.

Teemu:

Yes it's biohackersummit.com. The next one might be this year still. We are kind of looking at the situation with the travel restrictions and all that because we rely quite a lot on international guests. If that works out, we're going to do that in October in Helsinki. But otherwise, next year, August, 2022, it's going to be in Amsterdam and yeah, it's definitely something that I recommend people to join. It's not just a one or two day event. It's a full week of side events and you find the others. You'll definitely meet the other people who are as crazy or crazier than you in doing all these crazy experiments.

Dallas:

Yeah. It's nice to get everyone together to discuss the craziness. Well, Teemu it's been a pleasure. I know I've learned a lot today and I hope we can talk again soon and do keep in touch.

Teemu:

My pleasure and stay healthy. And start with one thing today; one thing that might be what you struggle with and see what you can do with it. That's my message.

Dallas:

Nice. Very good advice. Well, sir, have a great day and talk with you soon. Thank you.



IT'S ALL VIBRATIONS MAN!

Hippies. From the protests to the drugs, they truly revolutionized today's society, and though they may not always have had the best approach towards a healthy lifestyle, they were on the right path about something-vibrations. Every inch of the universe we live in is constantly vibrating at an invisible frequency. The birds, the grass, your bedside table, the old glass of water and, you guessed it, even you! Ultimately all matter is vibration, as such, at every scale, all of nature vibrates.

You may be thinking, what occurs when each being, each with a different set of vibrations meet? Oftentimes, as time passes, the vibrations actually begin to sync up in a process called self-organization. As such, electrical patterns sync in the brain to attain different levels of human consciousness: gamma, beta and theta waves. Groups of neurons produce these oscillations with the use of electrochemical impulses that aid the communication between each other. The speed and voltage of these singles are the factors that, when averages, produce in turn EEG waves. Gamma waves take the form of large-

scale coordinated activities we often partake in in our lives and attain through meditation, focused consciousness and perception. Beta occurs during maximum brain capacity/arousal and theta with relaxation and daydreaming.

As a human you can probably speak for yourself when you say that throughout the span of a day, we can often find ourselves jumping through such feelings and activities with ease. The three wave types work together to facilitate various levels of human consciousness. Neuronal synchronization plays a key role in this entire process, allowing for smooth communication between neurons. So yeah, I guess the hippies were right, it is all about vibrations. However, it's further about the type of vibrations and more importantly, shared vibrations.

Reaching the Vibration you desire: Apollo Neuro

All this talk about vibrations is nice but how exactly can one use this newfound knowledge to their advantage towards

the ulterior goal of self improvement? Apollo Neuro is your answer. It is a small device, often strapped to wrists or ankles with the appearance of a bracelet or a watch that must be worn for 15-30 minutes a day to reach peak efficiency. The device produces high quality vibrations which ultimately let you decide: how do you want to feel today? Holding a positive mindset is a crucial aspect towards achieving any desired lifestyle, a lack of will leads to ultimate demise and failure to achieve your goals. This is why it is so important to wake up every day positively, it truly sets the vibe for the rest of your day. It is all about perspective: going to lunch out with friends after waking up on the wrong side of the bed is the perfect opportunity to sulk and complain, ruining everyone else's time. The exact same lunch with you vibrating at a positive frequency could be the highlight of your week. Apollo Neuro allows you to decide who you want to be for the day. Founded by board certified psychiatrists and neuroscientists holding multiple PhD's, the decision is thoroughly backed up by studies and science.

My Personal Experience

It is part of my duty to try new devices and new hacks for my audience in order to direct them in the best possible path to match their needs in the utmost efficient manner. When I first started testing Apollo Neuro, I had already looked a bit into their philosophy and the evidence behind their product. The science seemed concrete and I thought why not give this a try? I, just like probably every person on the planet, would love to have some sort of control over how I feel. Ever since I've put it on, it's been strapped to my wrist all day and night, every day. It isn't often that I truly rave about a product but honestly, I find everything about this device simply cool. It's simple, easily app accessible, proven scientifically, looks sleek and genuinely does do what it's supposed to do. I saw a great improvement in not only the length but also the quality of my sleep while using this device in sleeping mode. As an individual suffering

from ADD, sleeping is often something that does not come so easily. I am telling you that I slept like a baby the first time I wore my Apollo! I was shocked. I knew it would work but didn't expect it to work that well!

Using the device in a self-sufficient manner

It is so important to truly understand and read up on the device before experimenting. A tool such as this one is powerful enough to improve the speed and efficiency of your lifestyle goals but only if used correctly. It is crucial to inform yourselves through their website. I find that the two modes that showed the best personal results in my case would be Meditation and Mindfulness as well as Sleep and Renew. These are the ones I've found work the best for me personally but everyone's goals are unique to themselves along with their weaknesses. Incorporating this gadget for only 15 minutes of your day will boost your mental capabilities in a way that will surprise and amaze you. On the path to becoming a cyborg, the first thing I teach is to earn a deeper understanding of one's self in order to maintain that healthy mindset required to achieve your goals. Apollo Neuro, though not a complete answer to the long road it takes towards fully understanding one's self, can be kind of seen as a shortcut. It may not do the work for you but it sure will get you there faster.

Give it a try, it might surprise you!

I am so grateful for the opportunities that come to me to be able to work alongside companies with messages that support mine. Trying Apollo Neuro, I can confidently say it has improved various parts of my life and it can improve yours too. The sky's the limit, never cease to do whatever it is that can make you happy or serve you in the greater good towards a healthier mindset. Self-work however is irreplaceable and required in order for Apollo to play a positive impact on your life. Approach this opportunity with an open mindset, give it a try, it might surprise you!

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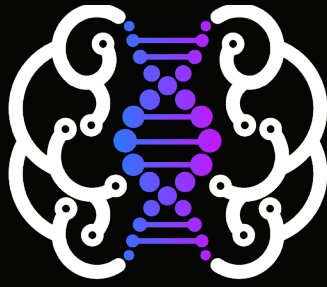
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You all ROCK!



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